

REMARKS

The Office action of April 7, 2004, has been carefully considered.

Objection has been raised to the drawings under 37 CFR 1.83(a) on the basis that the electron extraction electrode as claimed in Claim 7 is not shown in the drawings.

Applicants have now added a new Figure 11 to the drawings, and have amended the specification on page 12, lines 12 through 28, to describe the structures shown in Figure 11. No new matter has been added.

Objection has been raised to the specification based on text at page 8, line 24 and page 9, line 19, and the appropriate corrections have been made.

Objection has also been raised to Claim 9, and the appropriate correction as noted in the Office action has been made.

Claims 1 through 5 have been rejected under 35 USC 112, second paragraph, and Claim 1 has been amended to recite that it is the emission surface for electrons that has a thickness in the range of 1 to 20 nm. Withdrawal of this rejection is requested.

Claims 1 through 4, 6 through 8 and 10 through 16 have been rejected under 35 USC 103(a) over WO 98/06135 in view of Shiratori et al, and Claim 5 has been rejected under 35 USC 103(a) over WO 98/06135 and Shiratori et al and further in view of Stratton.

Claim 9 has been found to be allowable over the art. In light of this finding, Claim 8 has been amended to incorporate the principal recitation of Claim 9, that the metal/semiconductor junction possesses a potential barrier with a height in the range of 0.05 to 0.5 eV. Claim 9 has been amended to delete this recitation, but to retain the

preferred recitation of about 0.1 eV.

Based on this amendment, Applicants submit that Claims 8 through 16 are allowable.

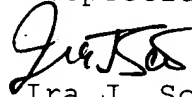
Moreover, independent Claims 1 and 6 have also been amended to recite that the junction possesses a surface potential barrier with a height in the range of 0.05 to 0.5 eV. Applicants submit that Claims 1 and 6, and the claims dependent thereon are allowable for the same reason given with respect to Claim 9, i.e. the prior art of record neither teaches or suggests an emission cathode with all the limitations as claimed and particularly the limitation comprising the metal/semiconductor junction possessing a potential barrier of height lying in the range of 0.05 to 0.5 eV.

Withdrawal of these rejections is requested.

New Claims 19 and 20 depend from Claims 1 and 6, respectively, and recite the potential barrier in the range of approximately 0.1 eV, as is recited in Claim 9.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,



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